



# Michigan Department of Agriculture & Rural Development

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## Pesticide & Plant Pest Management Division Annual Report 2012

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*Introduction by Gina Alessandri, Director, Pesticide & Plant Pest Management Division*

Welcome to the Pesticide and Plant Pest Management Division (PPPM). We're responsible for protecting human and animal health, the environment, and domestic plant industries; and facilitating international and interstate trade of plant-based commodities. PPPM accomplishes this by regulating the production, distribution, and use of pesticides, animal feed and fertilizer products; by surveying for and responding to detection of invasive species; by inspecting nursery stock and Christmas trees; and by certifying that plants, plant products, fruits and vegetables meet grade or phytosanitary requirements of receiving businesses, states, and countries. PPPM activities are divided into the three programmatic sections:



Our **Pesticide Section** is responsible for protecting human health and the environment from unnecessary risks associated with improper pesticide use. Program responsibilities include the certification and licensing of pesticide applicators and firms, registration of pesticide products, monitoring pesticide manufacturing establishments, regulating the sales and distribution of restricted use pesticide products, investigating pesticide use practices and misuse complaints, and enforcement of federal worker protection standards. Additional activities include insect, rodent, and arbovirus management.

Our **Plant Industry Section** is responsible for assuring that plant material and fruits and vegetables meet specific standards and are free of harmful insects and diseases. Program responsibilities include the certification of nursery stock and Christmas trees; the inspection of commodities such as dry beans, lumber, fresh produce, nursery stock and flowers for foreign export; and the inspection and grading of fresh fruits and vegetables. Additional responsibilities include enforcement of various state and federal quarantine programs and exotic pest survey and response.

Lastly, our **Agricultural Products/Producer Security Section** is responsible for enforcement of producer and consumer protection laws related to the storage and handling of grain products and the manufacture and distribution of commercial animal feeds, fertilizers, and liming materials. Program responsibilities include licensure and auditing of grain storage facilities; inspection and sampling of animal feeds, remedies, fertilizers, and liming materials for quality assurance and food safety; and inspecting bulk agrichemical storage facilities.

This report summarizes the many activities and accomplishments of the PPPM division for fiscal year (FY) 2012. As in previous years, staff worked closely with consumer and commodity groups, industry, and state and federal partners to provide exceptional, high quality service to our stakeholders and the citizens of the state. I am proud of the work performed by division staff and happy to share this report with you.

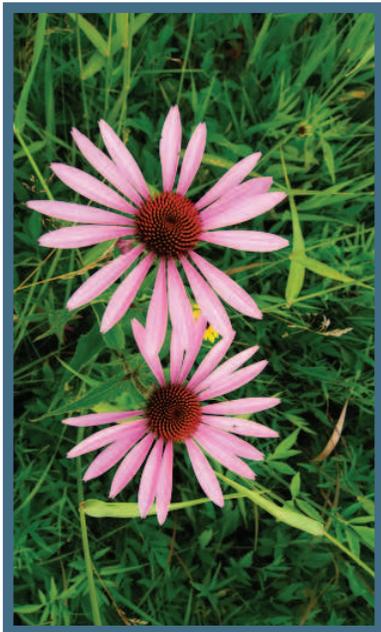
**The mission of the Pesticide and Plant Pest Management Division is to:**  
*Protect human health and the environment, while fostering  
a diverse, viable Michigan agriculture.*

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Photo's by David Kenyon, MDNR

## Section 1 – Exotic & Invasive Species Pest Management



**Ash mortality due to the emerald ash borer**

### **Emerald Ash Borer**

Emerald ash borer (EAB) was first identified in 2002 in six Michigan counties and has since spread to 75 counties, including seven in the Upper Peninsula (U.P.) There were no new counties identified as being infested in 2012. The internal EAB Quarantine was last revised on February 8, 2011.

Approximately 50 million of Michigan's 700 million ash trees have died due to EAB. In addition, EAB infestations have been found in Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Minnesota, Missouri, New York, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, Wisconsin, and Ontario and Quebec, Canada. These infestations are attributed to movement through nursery stock, firewood, and other ash material, including logs.

During the past nine years, the Michigan Department of Agriculture and Rural Development (MDARD), along with its partners, the Michigan Department of Natural Resources (MDNR), United States Department of Agriculture – Animal and Plant Health Inspection Service (USDA - APHIS), the USDA - Forest Service (USDA - FS), Michigan State University (MSU), and Michigan Technological University (MTU) have learned a great deal about this pest's lifecycle, its flight patterns, its reproductive habits, and how it spreads. They have focused on utilizing new methods to identify the leading edge of infestations to further suppress the spread of EAB into new areas.

Continued survey of the non-quarantined counties in Michigan continues to be a critical activity. Knowing where EAB exists in the U.P. will allow for regulation of areas once they are found to be infested and allows for the ongoing adjustment of the Quarantine.



## EAB Regulatory Activities

Preventing the artificial spread of EAB continues to be a priority for MDARD. In 2012, MDARD continued its focus on enforcing the EAB Quarantine and increasing compliance. Regulatory activities included monitoring the movement of ash products, conducting regular inspections, investigating quarantine violations, and issuing compliance agreements to firms that process, or have the potential to process, ash wood products.

PPPM staff also continued to identify firms and persons that may artificially spread EAB such as nurseries, landscapers, firewood dealers, logging and milling companies, utility companies, tree removal and trimming firms, excavation and land clearing firms, municipalities and/or other government agencies, composting yards, and wood disposal facilities.

MDARD continued to issue compliance agreements to firms allowing for the movement of regulated products out of quarantined areas. PPPM staff inspected firms or persons with compliance agreements to verify appropriate treatment and disposal methods were being used, shipments had the appropriate certification, and records were accurate. In 2012, PPPMD maintained approximately 120 compliance agreements with receivers, brokers and shippers.

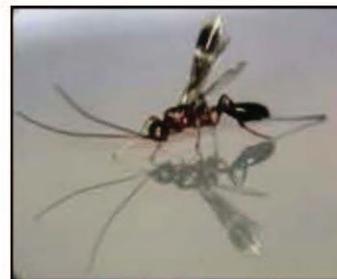
A regulatory “blitz” was conducted at the Mackinac Bridge just prior to the firearm deer hunting season. Fifty-nine travelers were contacted; one traveler was found moving firewood in violation of the quarantine. The firewood was seized and a Report of Violation was issued. In addition, two commercial wood hauler contacts were made. No regulated ash wood was found moving in violation of the quarantine. The general knowledge of the quarantine restrictions on moving regulated materials was rated as ‘medium.’



***Tetrastichus planipennis***  
(Hymenoptera: Eulophidae)



***Oobius agrili***  
(Hymenoptera: Encyrtidae)



***Spathius agrili***  
(Hymenoptera: Braconidae)

## EAB Biological Control

In 2012, USDA scientists continued to evaluate parasitic wasps as biological control agents against EAB. MDARD approved the general release of these organisms in 2007 after a national review and comment period conducted by USDA-APHIS and a finding of no significant environmental impact. The results will be studied to decide whether the wasps can become established in Michigan and provide effective control against EAB. A rearing facility established in Brighton, Michigan by USDA-APHIS is producing three different parasitic wasps for release: an EAB egg parasite, *Oobius agrili*, and two EAB larval parasites, *Tetrastichus planipennis* and *Spathius agrili*. Releases of these parasitic wasps occurred in multiple counties in Michigan’s Lower Peninsula and at two sites in the U.P. A parasitic wasp native to Michigan in the genus *Atanycolus* is also being evaluated as a possible biological control against EAB. USDA researchers are continuing in their efforts to identify other possible biological control agents.

In 2012, PPPM, in cooperation with USDA/APHIS, conducted a trapping survey as part of a recovery and establishment study. The survey occurred at 13 sites in the mid-Lower Peninsula where wasps had been released in the past. A total of 156 traps were deployed and nearly 300 samples collected. Yellow pan traps were used as the trapping mechanism for this study. The trap is designed to capture the two larval parasites, *Tetrastichus planipennisi* and *Spathius agrili*. Results from the study are preliminary, but wasps were recovered from at least five of the 13 sites. This information will be used to further the effort to employ these parasitic wasps in the management of EAB nationwide.



*Atanycolus cappaerti*



Yellow Pan Traps

### Outreach Activities

Outreach and education efforts are essential in every aspect of the EAB program. Public awareness and understanding enhances compliance with the quarantine and supports the state's overall efforts to prevent the artificial spread of EAB.

PPPM produced and distributed numerous pieces of educational materials to stakeholders as well as the general public. Additionally, staff hosted public meetings and several informational booths, educational seminars, workshops, and group discussions.

PPPM continued to maintain the EAB Hotline. The top four areas of inquiry or concern were:

1. Clarification of requirements on firewood movement.
2. Inquiries about funding assistance for tree removal.
3. Inquiries from individuals who believed they have EAB and who were looking for guidance on what to do.
4. Requests for quarantine compliance assistance.

Highway signs continued to be positioned at key locations, as northbound travelers approached the Mackinac Bridge, informing them not to bring firewood into the U.P.

Two press releases were issued in 2012, including one in May announcing EAB Awareness Week, reminding travelers to leave their firewood at home and to "burn it where they buy it." The second press release issued in November announced the detection of EAB in the city of Houghton, a reminder that a ban on the movement of firewood north across the Mackinac Bridge remains in effect, and a plea to hunters and other travelers to not move firewood.

## **Aquatic Invasive Species**

Aquatic Invasive Species (AIS) obtained through trade find their way into lakes and streams through a variety of pathways. Although well intentioned, uneducated consumers may purposefully release unwanted pets or plants species and associated pathogens, believing it is a humane action without knowing the consequences to the environment. Unintentional escape of AIS can occur from water gardens through wind, flooding, and human activities. AIS can also be distributed unintentionally as contaminant species associated with legitimately sold species, or through misidentification and unfamiliarity with a given species common or scientific name.

In 2010-2012, the State of Michigan received funding to support five employees; administered by Michigan Department of Environmental Quality's (MDEQ) Water Resources Division (WRD), from a Great Lakes Restoration Initiative (GLRI) grant through the U.S. Fish and Wildlife Service for a state-level AIS Core Team and other AIS-related monitoring, early detection rapid response, and program and project activities.

PPPM is a member of the AIS Core Team and conducted the following activities in FY 2012 under this grant:

1. Performed targeted site visits for the purpose of assuring no prohibited or restricted aquatic plants were being distributed in Michigan. These sites consisted of firms which had potential to be selling aquatic plants on a wholesale or retail basis, including plant growers, plant dealers, home improvement chain stores, and pet stores. Site visits were conducted statewide at 154 locations. A total of 61 out of the 154 firms were found to have aquatic plant species in stock. The majority of firms with aquatic plants in stock were in compliance; however, four firms carried plant species identified as species prohibited or restricted under the Natural Resources and Environmental Protection Act (NREPA). MDARD issued destruction orders for the prohibited species.
3. Updated the Aquatic Invasive Species State Management Plan relating to AIS Organisms in Trade (AIS-OIT), such as aquatic plant species sold through aquarium dealers, pet shops, and water garden suppliers.
4. Updated the MDARD prohibited and restricted weeds webpages on MDARD's website and added in a link to the DNR's invasive species webpages. In addition, this information was updated on the National Plant Board webpages summarizing state regulations.
5. Collaborated with DNR Wildlife Division staff on a press release pertaining to Japanese knotweed as a species that is regulated under NREPA, Part 413. Japanese knotweed is occasionally distributed through illegal sales, informal exchanges between property owners, and through movement of infested soil.
6. Administered prohibited and restricted species permits as required under NREPA, Part 413. These are issued to allow for possession of prohibited species for research and educational purposes.



**Photo by: UAF Cooperative Extension  
Archive, University of Alaska - Fairbanks**

## **Exotic Pest Detection and Management**

PPPM is responsible for the detection, regulation, and when applicable, control or eradication of exotic insects and plant pathogens. These exotic pests can significantly impact agricultural production, ecological, sustainability, and human health. Exotic pests gain entry into new areas as contaminants in agricultural and related commodities, as hitchhikers in cargo and baggage, or through natural spread of established populations. PPPM utilizes a variety of trapping, sampling, and inspection techniques in an effort to locate these pests while there is still time to implement successful mitigation strategies.

Michigan is home to eight significant ports-of-entry, including the busiest commercial border crossing in the world. Its agricultural, horticultural, and industrial sectors receive plants and plant products from around the globe. And with more than 300 commodities, Michigan has the nation's second-most diverse agricultural economy. Taken together, these factors place Michigan at exceptional risk for the introduction and impact of exotic pests.

Detection and management of exotic pests are facilitated through PPPM's participation in the Cooperative Agricultural Pest Survey (CAPS), Farm Bill Section 10201, and U.S. Forest Service Forest Health programs.

## **Potato Cyst Nematodes**

Three species of exotic *Globodera* cyst nematodes pathogenic on potato are known to occur at a handful of sites in the U.S. and Canada. To ensure foreign markets remain open to Michigan-grown seed potatoes, PPPM participates in a national soil sampling program to detect populations of nematodes or demonstrate their absence in the state's seed potato fields. In 2012, PPPM completed its fifth consecutive year of sampling, and to date nearly 5,000 acres in the Upper Peninsula and northern Lower Peninsula have been intensively surveyed. No *Globodera* cyst nematodes have been found in Michigan.

## **Plum Pox Virus**

Plum pox virus (PPV), the world's most serious viral disease of peaches, plums, apricots, and nectarines, was detected in a single tree in the southwestern Lower Peninsula during a routine survey in 2006. All potentially infected trees were removed, and the impacted area was quarantined. An annual survey to intensively sample the major stone fruit-producing areas of the state began in 2007 and continued in 2012. To date, 210,000 samples have been collected and processed with no additional PPV detections. This remains one of the best examples of the importance of early detection in the response to exotic plant pests.

## **Honey Bee Pests**

Honey bees across the nation are under enormous stress from a host of known and unknown pests and other harmful agents. In 2012, PPPM participated for the third year in a Farm Bill-funded national honey bee survey with the goals of establishing baseline pest information, detecting previously unknown exotic pests, and demonstrating pest freedom for federal regulatory purposes. This work is important to protect the state's beekeeping industry and the fruit and vegetable industry that depends on its pollination services. To date, 74 apiaries have been surveyed and samples analyzed by USDA. No previously unknown pests have been found.

### Asian Longhorned Beetle

Active Asian longhorned beetle (ALB) infestations in New York, New Jersey, Massachusetts, and since 2011, in Ohio, have increased the risk of ALB moving into Michigan. Michigan must be vigilant in its efforts to keep ALB out of the state; and if introduced, ensure it will be quickly detected and reported. Early detection of infestations and rapid treatment response are crucial to effective eradication efforts.



Photo: Connecticut Agricultural Experiment Station

This highly destructive wood boring insect attacks at least 13 genera of trees, including maple, birch, willow, elm, sycamore, and poplar. Hardwood species, particularly red maple and sugar maple make up a majority of Michigan's 19.3 million acres of forestland and a high percentage of the urban tree canopy. There are an estimated 4.4 billion cubic feet of sugar maple growing in Michigan forests.

PPPM is increasing its surveillance activities and outreach and education efforts for the insect. Knowledge of the signs and symptoms of ALB is critical for all persons working with trees in both urban and forested areas, such as tree-care professionals, foresters, loggers, campground operators, and firewood dealers. Based on previous infestations in other states, trained individuals along with an educated public greatly expands the number of surveyors and increases the probability that infested trees will be spotted and reported early.

Early detection and subsequent eradication anywhere in the state will have a direct or indirect impact on Michigan's communities. Eradication will greatly reduce the overall economic impact to:

- Homeowners and urban communities (loss of trees, cost of tree removals, and tree replacement costs);
- State and private forest lands (loss of timber resources, alter ecology of impacted sites);
- Maple sugar industry (maples is a preferred ALB host plant) and;
- Recreational areas (loss of trees resulting in loss of aesthetic resources and cost associated with removal of hazard trees)

### Hemlock Woolly Adelgid

PPPM responded aggressively to a new detection of hemlock woolly adelgid in Berrien County in March of 2012. This detection brings to five the number of counties since its first discovery in Emmet County in 2006. Hemlock is an ecological keystone species, making this pest among the most significant threat to the health of Michigan's northern forest ecosystems. Tree removals, pesticide treatments, and large-scale survey efforts were initiated in 2012 in Berrien County and continued in Emmet, Macomb, and Ottawa counties. These efforts will continue in 2013 using funds acquired through a U.S. Forest Service competitive grant. Sustained diligence will be necessary to ensure Michigan remains free of this extremely destructive insect.



UGA3225077



### HWA Infestation History in Michigan

#### Exotic Fruit and Forest Pest Surveys

In 2012, PPPM conducted its seventh consecutive year of survey for numerous high-priority forest pests statewide. This year, 80 commercial and industrial sites were targeted for detection activities, which included trapping for more than 30 exotic woodboring and defoliating insect species. To date, nearly 300 high-risk sites have been surveyed. No significant exotic pests were discovered. Also in 2012, PPPM surveyed for a series of high-priority exotic fruit pests at 30 grape vineyards and 75 stone fruit orchards in the western Lower Peninsula. No pests were found.

#### Viruses on Imported Perennials

In response to growing concern over virus-infected herbaceous perennial imports, between 2006 and 2012 PPPM has conducted surveys to systematically document the prevalence of viruses in perennial plants imported under USDA-APHIS preclearance programs. To determine if actions have been taken to reduce these unacceptably high infection rates (approximately 25% in 2009), a large-scale imported plant sampling program began in late 2012 and will conclude in early 2013. This survey will utilize several high-tech methods, including Enzyme-Linked Immunosorbent Assay (ELISA), Polymerase Chain Reaction (PCR), and electron microscopy to document the prevalence of viruses in these plants.



## Section 2 – Plant Pest & Commodity Certification

PPPM's Plant Pest and Commodity Certification programs facilitate interstate, intrastate, and foreign trade through inspection and certification of nurseries and plant material and provide an unbiased, third-party inspection service for the produce industry through the fruit and vegetable inspection program. The goals of these programs are to:

- Prevent the spread of harmful pests and diseases which could lead to serious ecological and economic losses.
- Facilitate the export of plant-based commodities (dry beans, grain, hay, nursery stock, logs, and lumber) to markets to more than 80 countries.
- Ensure plants purchased by consumers meet requirements for viability, trueness to varietal name, and quality standards.
- Assure Michigan fruit and vegetable producers meet the requirements necessary to access local and international markets.

### Nursery Program

Nursery inspections facilitate the sale of plant materials, such as trees, shrubs, herbaceous perennials, small fruit plants, and hardy bulbs. Nursery and perennial plant producers generate about \$261 million in annual sales. Sales of Christmas trees by Michigan producers generate another \$41.5 million, representing 2.87 million trees; sales of wreaths and boughs account for an additional \$1.3 million (*source: 2004 Rotational Survey*). Michigan nursery growers produce stock for sale within the state and ship to 35 states and foreign markets. Through the inspection process, PPPM ensures plant materials entering market channels are free of pests and diseases. In addition to inspecting for pests and diseases, PPPM field staff also makes sure that production areas are free from weeds. For those plants destined for out-of-state markets, the commodity must meet the phytosanitary requirements of the receiving state. Inspectors visit nursery stock dealers who receive stock from high-risk states to review shipping documents and confirm the stock is free of pests and diseases. Over a dozen pests are the main focus of these inspections. Import inspections are also performed at both the grower and dealer level when nursery stock arrives from foreign sources.

### Export - Interstate Certification

PPPM certifies nursery stock, Christmas trees, logs, hay, and bedding plants for interstate shipment. PPPM field staff ensures plant materials meet the quarantine requirements of the receiving states. Of primary importance are five major quarantine-significant pests: gypsy moth, pine shoot beetle, emerald ash borer, Japanese beetle, *Phytophthora ramorum* blight, and black stem rust. Japanese beetle is the focus of several external state quarantines as well as the National Japanese Beetle Harmonization Plan. To certify plant materials for shipment outside gypsy moth regulated areas, PPPM inspectors assure freedom from this pest through an egg mass survey plus the required annual inspection. In areas of high gypsy moth populations, PPPM also conducts additional checks in the spring for the presence of larvae that may be blown in from surrounding areas. The black stem rust quarantine applies to barberry and related species and only approved resistant varieties may be sold.

### Export - Foreign Certification

Under cooperative agreement with USDA, commissioned PPPM staff members receive training and authorization to issue federal phytosanitary certificates facilitating trade in foreign markets and the export of Michigan commodities shipped to 80 countries worldwide. The vast majority of exports went to trading partners in Canada and Mexico, as well as to Europe and South America. The largest export categories by volume are propagative items (nursery stock and agricultural seed), grain for consumption, straw, logs, and lumber.



PPPM also monitors compliance with special export programs to assure producers meet the requirements of these new initiatives. The “Apples to Mexico” program is the most recent initiative facilitated by a partnership between MDARD-PPPM, USDA, Michigan Apple Committee, Michigan State University, and Mexican officials. The U.S./Canada Greenhouse Certification Program is another successful export program facilitated in Michigan by PPPM staff.

### Plant Pathology Laboratory Activities in Support of Export and Plant Disease Prevention

The PPPM Plant Pathology Laboratory, located within MDARD’s Geagley Laboratory, performs many activities in support of certification and export. Plant Pathology is actively involved in improving the quality of pome and stone fruit trees in Michigan. This virus-free indexing program is established at a large commercial fruit tree firm in southwest Michigan. PPPM-Plant Pathology also conducts virus-free certification of blueberry plants to help growers obtain disease-free vigorous plants for export and domestic markets. Other activities include dry bean testing, seed corn certification, and support of CAPS surveys for plum pox virus, *Phytophthora ramorum* blight, and viruses of imported perennial ornamentals such as hosta.



Greenhouse located at Geagley Laboratory

### **Biotechnology and Plant Post-Entry Quarantine Import Permits**

To facilitate safe introduction of foreign genetic material to improve the quality of fruit trees and other crops in Michigan, PPPM reviews applications and issues import permits in cooperation with USDA-APHIS-PPQ. In 2012, PPPM, in agreement with USDA, approved a total of 98 permits, including renewals, for commercial companies and research and teaching institutions in Michigan. Sixty-eight permits were issued for interstate movement and field trials of genetically modified organisms (GMO), 20 for the importation and movement of plant pathogenic organisms, three for movement of federal noxious weed plants, and seven for the importation of soil samples for laboratory research and analysis.

### **Fruit and Vegetable Inspection Program**

The Fruit & Vegetable (F&V) inspection program offers an unbiased, third-party inspection service for the produce industry in Michigan and throughout the United States. Inspections are based on USDA and Michigan standards, processor specifications, and/or industry requests. USDA standards are used nationwide as a basis for purchase and to resolve disputes. All F&V staff must be licensed by USDA on each commodity they inspect.



### **Shipping Point Inspections**

Shipping point inspections are used to assure the quality and condition of Michigan produce prior to shipment. This type of inspection verifies Michigan produce meets the grade marked on the containers and bags. Some shipping point inspections are mandatory such as exports, the school lunch program, and government purchase inspections. USDA grades are recognized throughout the world and are used as a basis to market produce.

### **Process Inspections**

Seasonal F&V inspectors perform inspections on raw produce received from farmers at process plants and receiving points. The inspections are based upon USDA standards and/or processor specification. Process inspections protect Michigan farmers by providing them with an unbiased, third-party inspection upon which they are paid for their produce. In addition, inspections protect processing plants from receiving poor-quality produce from Michigan farmers. They also protect Michigan consumers from receiving poor-quality produce in processed goods.



Photo by David Kenyon, MDNR

### **Market Inspections**

F&V inspection staff are licensed by USDA to conduct market inspections on produce entering the channels of trade from anywhere in the world. Market inspections protect the buyer, broker, and consumer from receiving poor-quality produce or produce which does not meet the promised grade or condition. Market inspections are used to resolve disputes which end up in court and are vital to the survival of the state's buyers and brokers, and receivers of Michigan produce worldwide. PPPM has three F&V staff fully licensed to inspect incoming market loads of produce.

## Good Agricultural Practices, Good Handling Practices

Good Agricultural Practices and Good Handling Practices (GAP/GHP) were developed by USDA as a result of requests from states, shippers, and growers and provide set guidelines for the fresh produce industry. These inspections are an independent, third-party, audit-based service provided by trained and licensed F & V inspectors and Plant Industry staff. These staff have successfully completed the GAP/GHP training class and have participated in a minimum of three audits, including two as the lead auditor.



Photo by David Kenyon, MDNR

Currently, there are eight MDARD staff members fully trained and licensed to perform audits for USDA GAP/GHP in Michigan. This program is currently being used by Michigan's apple, asparagus, potato, peach, carrot, cherry, onion, blueberry, radish, green onion, beet, raspberry, apricot, pear, strawberry, watermelon, winter squash, summer squash, and cantaloupe industries. These audits are required by some purchasers of produce and are mandatory in order to participate in the school lunch program.

## Controlled Atmosphere Storage Licensing Program

Enjoying crisp, juicy, flavorful Michigan apples year-round is possible due to controlled atmosphere (CA) storage. CA involves careful monitoring and control of temperature, oxygen, carbon dioxide, and humidity. All CA rooms are inspected and sealed by F&V inspection staff annually. CA is required by some foreign countries as a condition of sale or as a phytosanitary requirement.



## Seed Potato Inspection

F&V inspectors conduct mandatory shipping point inspections on all Michigan certified seed potatoes prior to shipment to various farms throughout the U.S. The state continues to be a national leader in production of potato seed, with the largest market here in Michigan. In the fall, F&V inspection staff conduct quality control inspections during harvest of Michigan certified seed potatoes prior to placement in storage bins for shipment in the spring. The final grade and disease certification inspection occurs while seed potatoes are being loaded into trucks and represents the last control measure to prevent diseased potatoes from being shipped out of Michigan thereby helping to preserve the integrity of Michigan's seed potato program. During 2012, F&V inspectors conducted 125 shipping point inspections on approximately 4,934,500 million pounds of seed potatoes.

## Fruit Issues

2012 was the worst year in recorded history for Michigan fruit. Statewide, more than 90 percent of the tart cherry crop was lost and 87 percent of the apple crop when freezing weather followed an unusually warm spring. The severe crop losses caused a corresponding reduction in the number of F&V inspections, audits, and licenses requested compared to previous years.

**Fruit & Vegetable Certificates Issued**

Shipping point inspections.....	1,200
Process inspections.....	153
Market inspections.....	583
GHP/GAP audit inspections .....	77

**Licenses issued**

Controlled atmosphere licenses .....	0
Wholesale potato dealer licenses.....	6

**Plant Pest & Commodity Certification Statistics**

**Nursery licensing**

Total licenses .....	5,217
Total growers licensed .....	1,304
General nursery licenses .....	907
Plant grower licenses.....	93
Small scale grower licenses .....	304
Total dealers licensed .....	3,913
Nursery stock dealer license.....	3,174
Nursery stock dealer market licenses.....	169
Plant dealer licenses.....	289
Plant dealer market licenses.....	49
Registered nursery dealer licenses .....	73
Registered nursery dealer market licenses .....	3
Small scale dealer market licenses .....	156

**Nursery inspections**

Growers: total acres inspected.....	7,532
Dealers: dealers inspected.....	344
Aquatic plant compliance monitoring sites.....	154

**Seed corn inspections**

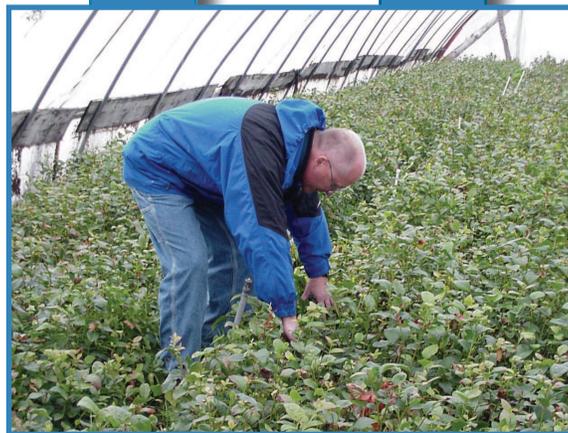
Total acres inspected .....	30,000
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**Christmas tree inspection – federal gypsy moth & pine shoot beetle quarantines**

Fields inspected .....	356
Percent of fields in compliance .....	97.2%

**Pine shoot beetle compliance management program**

Firms enrolled .....	9
Fields enrolled.....	18
Acres enrolled .....	306



**Export certification**

Federal phytosanitary certificates issued ..... 3,522  
 Re-export certificates issued..... 22

**US/Canada greenhouse certification program**

Firms enrolled ..... 3  
 Shipments certified..... 808

**Blueberry certification for exporting fresh fruit to Canada**

Firms enrolled ..... 4  
 Shipments certified ..... 11

**Nursery firms issued compliance agreements for federal/state quarantines**

Black stem rust..... 20  
 Gypsy moth ..... 99  
 Japanese beetle ..... 88  
 Pine shoot beetle..... 42  
 Total compliance agreements issued ..... 249

**Plant Pathology Laboratory**

**Virus-free indexing of pome & stone fruit trees**

Stone and pome fruit trees maintained for certification of budwood for virus-free status ..... 3,843

**Blueberry virus-free certification**

Samples tested representing 207 cultivars from five commercial growers..... 613

**Dry bean seed testing**

Samples tested for seed-borne diseases ..... 59

**Seed corn certification**

Seed corn samples representing 40,000 acres..... 654

**Plum pox virus**

Samples collected from 63 growers in 7..... 10,307 counties- all negative

**Phytophthora ramorum blight**

Samples from 9 nurseries – all negative ..... 110



## Section 3 – Food Safety & Consumer Protection

### Commercial Feed Program

The commercial feed program helps assure the safety and wholesomeness of feed and food products in Michigan through its inspection and sampling program. Approximately 1,200 feed manufacturers and distributors of more than 2.9 million tons of commercial feed and feed ingredients are regulated under the program. Safe and nutritious feed, free of contaminants and harmful residues, is the overarching goal.

PPPM regularly inspects, samples, and analyzes commercial feed to ensure that feeds are in compliance with the Michigan Commercial Feed Law and the rules promulgated under the act. Inspections and sampling help to assure that feed products offered for sale are safe and that they provide the promised nutrition. In 2012, PPPM sampled over 700 feed products. Ninety-six violation notices were issued to firms and manufacturers for products that did not meet label guarantees. PPPM staff conducted audits and worked with firms to help identify and correct deficiencies.

To ensure companies comply with Michigan's licensing and labeling requirements, PPPM inspectors inspect any facility in which feeds are manufactured or distributed including feed mills, farm suppliers, grocery stores, pharmacies, gas stations, and wholesale distributors. In addition, PPPM staff review feed labels to prevent deceptive labeling and investigate reports of animal deaths or illnesses where feed may be implicated.



### \*Feed Program Highlight\*

#### Pet Food Recall – Over 1.5 Million Bags Affected

MDARD's feed sampling surveillance activities initiated the largest-ever pet food recall due to human illness. During the spring of 2012, a nationwide voluntary recall of 17 brands and over 30,000 tons of pet food occurred after MDARD detected *Salmonella* Infantis in a dry dog food. The recall was linked to 53 human illnesses and dozens of animal illnesses and prevented countless others from becoming ill. This discovery is unique and now serves as a national case study on the interconnection between animal feed safety and human health.

### Medicated Feed

Therapeutic and production drugs are commonly administered to livestock and poultry through their feeds. For this reason, PPPM monitors the manufacturers of medicated feeds and takes samples to ensure compliance with federal regulations. These regulations cover good manufacturing practices designed to prevent unsafe drug residues in human food.

In 2012, 182 medicated feed samples were collected and analyzed. Out of these samples, 27 were found to be violative and did not meet drug label guarantees. Violation notices were sent to these retailers and manufacturers. Traceforward and traceback inspections, audits, and additional enforcement were conducted at the retailer and in-state manufacturer locations.

### **Bovine Spongiform Encephalopathy (BSE or “Mad Cow Disease”)**

PPPM is an active participant in a national effort led by the U.S. Food and Drug Administration (FDA) to prevent the introduction and establishment of BSE in the United States. This is done by closely monitoring the use of certain animal-derived proteins in animal feed. PPPM staff have been inspecting feed manufacturing facilities throughout the state under this program since 1998. All firms handling restricted protein materials are inspected at least yearly to assure continued compliance. In 2012, 84 inspections helped to assure that Michigan livestock and consumers were protected from BSE. PPPM staff collected 102 samples to be analyzed for prohibited protein as part of the annual feed sampling program. No prohibited protein was found.

### **Food and Feed Safety Grant Awards**

In September 2010, Michigan was one of 12 states to be awarded with an FDA Feed Safety Cooperative Grant. The five-year, \$1.25 million grant will allow MDARD to enhance its feed surveillance capabilities in the areas of early detection, rapid response, and effective recovery.

In 2012, MDARD was awarded two FDA building capacity food safety grants providing funding for food and feed safety and animal health projects. The grant activities will better integrate food, feed, and animal health best practices reducing risk and protect human and animal health. MDARD will share best practices and lessons learned throughout Michigan and across the country to benefit food safety and animal health efforts nationwide.



Though these grants and MDARD’s Rapid Response Team activities, PPPM’s feed program continues to utilize and build on its multi-divisional partnerships and training. This multi-divisional collaboration has been especially significant pertaining to feed training and investigations. Here are some examples from 2012:

- PPPM and the Food and Dairy Division collaboratively developed and cross-trained feed and food inspectors on aseptic sampling techniques for animal feeds and risk-based sanitation inspections. The aseptic sample training MDARD developed is now part of the national feed inspector training curriculum.
- MDARD and Michigan State University Diagnostic Center for Population and Animal Health (MSU DCPAH) helped respond to the accidental consumption of decoquinat (medicated feed) by dairy cattle.
- PPPM feed and pesticide staff responded to findings from MSU DCPAH of chlorpyrifos (insecticide) in timothy hay pellets used for horse feed. MDARD found the chlorpyrifos levels were low enough to not cause harmful effects to the complainant’s horse. The case was forwarded to the EPA and the Idaho Department of Agriculture (manufacturer location) to determine how the contamination occurred.

- PPPM worked with U.S. Customs at the U.S./Canada border and the Michigan State Police at highway scale houses to identify feed trucks coming into the state of Michigan. Staff helped to ensure out of state feed was labeled properly, conducted visual inspections, and obtained samples.
- PPPM staff took 45 mycotoxin samples in response to industry and producer concerns of elevated aflatoxin levels due to the 2012 drought. The results helped verify there was little to no adverse effects on the corn raised in Michigan. All samples were found to be below FDA's action level for aflatoxin in grain of 20 parts per billion or higher.
- PPPM hosted the Association of American Feed Control Officials Advanced Feed Inspector Training in Traverse City in October 2012 with 45 attendees and speakers from 11 states and FDA. The training covered a number of feed and food safety issues including preventative controls, contaminants, aseptic sampling, medicated feeds, labeling, investigations, recalls, and emergency management.

### **Animal Remedies Program**

Modern animal husbandry practices often demand the use of drugs and vaccines to prevent or treat diseases which can harm herd health and cause decreases in production. Many drugs and vaccines are also used extensively by homeowners in the care of their pets. The PPPM animal remedy program helps assure drugs and vaccines are registered, safe, properly labeled, and effective for their intended uses.

### **Elevator and Feed Mill Sanitation Program**

Through this program, PPPM inspectors address and prevent insanitary grain storage conditions which could negatively impact the safety of Michigan's feed and food supply. The inspection program also helps prevent costly economic losses due to pests and other forms of environmental or chemical contamination. Through these inspections, PPPM helped to safeguard nearly 165 million bushels of grain and 361 million pounds of dry edible beans, processed and stored in Michigan's grain elevator system and valued at nearly \$2.8 billion.



In 2011 and 2012, PPPM's animal feed program developed a risk-based animal feed sanitation inspection program. This program allows inspectors to assess a facility's sanitation practices based on a weighted scoring system. Each sanitation violation found at a firm is given a score based on the criticality of the violation, where the violation occurred within the facility, and its overall severity. Twenty-four advisory letters were issued to firms with a failing score. Identifying key critical factors and implementing preventative controls will help MDARD's stakeholders prevent insanitary feed handling and storage conditions and grain contamination in the food supply chain.

### **Seed Program**

There are approximately 450 seed labelers and 140 dealers who process and distribute agricultural and non-agricultural seed in Michigan. Michigan farmers spend \$315 million annually on agricultural seed. The goal of the seed program is to ensure the seed purchased by Michigan growers and homeowners for planting purposes is of good quality and meets standards for germination, purity, and freedom from noxious weeds established in the Michigan Seed Law. Through its seed program, PPPM also provides oversight of seed certification activities ensuring the genetic purity of plant varieties and potato seed and other quality standards for crops.

Additionally, PPPM assists USDA in making sure seed companies comply with federal seed requirements and assist in the enforcement of the Federal Seed Act by providing samples and documentation for seed shipped in interstate commerce.

### **Fertilizer and Liming Program**

The fertilizer and liming program regulates approximately 600 manufacturers and distributors of 1.4 million tons of fertilizers, soil conditioners, and liming materials for both farm and non-farm use. Fertilizer is the most widely used agrichemical and is agronomically applied on about 5.5 million acres of Michigan farmland. Michigan producers and industry rely on this program to maximize yields and maintain a profitable agricultural operation. In addition, millions of state residents depend on this program to protect them from fraud when purchasing fertilizer for home and garden use.



Michigan is the first pilot state in the national, industry-wide AgGateway Tonnage Reporting Project for more efficient reporting of fertilizer and feed tonnage. Currently, 47 states require fertilizer and feed tonnage reporting and payment of fees with 47 different sets of forms. The Tonnage Reporting Project aims to help companies collaborate with state officials on a standardized format that can be used to streamline the industry's feed and fertilizer reporting.

### **New Statewide Phosphorus Fertilizer Restrictions on Turf**

Beginning January 1, 2012, the Michigan Fertilizer Law restricts phosphorus fertilizer applications on residential and commercial lawns, including athletic fields and golf courses, statewide. The new legislation prevents unnecessary applications of phosphorus fertilizer to turf and will help maintain and protect Michigan's vast water resources. The legislation will also provide statewide uniformity and guidance for local government, homeowners, and industry.

MDARD's phosphorus outreach information is available at [www.michigan.gov/mda-fertilizer](http://www.michigan.gov/mda-fertilizer) and at [www.BePhosphorusSmart.msu.edu](http://www.BePhosphorusSmart.msu.edu)

### **Producer Security Program**

This program regulates the enforcement of the Grain Dealers Act (PA 141 of 1939, as amended) and provides producer security review services for the Wholesale Potato Dealers Act (PA 158 of 1964), Manufacturing (PA 266 of 2001) and Fluid Milk (PA 267 of 2001) Acts, and the Licensing Livestock Dealers Act (PA 284 of 1937).

This program also provides financial accounting and assessment review services for the Agricultural Commodities Marketing Act (PA 232 of 1965). In addition, this program administers the Farm Produce Insurance Act (PA 198 of 2003) and the Agricultural Marketing and Bargaining Act (PA 344 of 1972).



The Grain Dealers Act regulates the storage, warehousing, and sale of farm produce in Michigan by providing for the licensure of 233 grain dealers. In 2011, there was \$3.2 billion in corn, dry beans, oats, soybeans, and wheat field crops in Michigan. A 2012 amendment, PA 148 of 2012, provides for a grain dealer license fee increase to partially offset a loss in general funding. The legislation will also eliminate bailment bond requirements. Also in 2012, an Exam Net self-inventory system was approved to provide a gain in regulatory efficiency, benefiting both Michigan grain dealers and MDARD.

The Farm Produce Insurance Act (PA 198 of 2003) was enacted to protect farmers in the event of a farm produce dealer's financial failure. The \$6.1 million fund provides payments to those farmers that are economically damaged by the financial failure of a farm produce dealer. The insurance fund is voluntary and is governed by a 10-member board appointed by the Governor to represent farmers and banking interests.



Administrative and regulatory responsibilities are provided by the Producer Security Program through a memorandum of understanding with the Farm Produce Insurance Authority. A 2012 amendment, PA 149 of 2012, requires licensed grain dealers in Michigan to collect, beginning January 1, 2013, an administrative assessment at a rate equivalent to 15 cents per \$1,000 of farm produce sold (.00015 per dollar) from each producer's payment.

Prior to the enactment of the Farm Produce Insurance Act, producers had lost \$13 million through numerous insolvencies at grain dealers in Michigan. Since 2005, the Farm Produce Insurance Act has paid \$920,000 in claims to 92 producers and has recovered \$600,000 from bankruptcy and probate proceedings. Under the voluntary provision of the Farm Produce Insurance Act, 67 producers out of an estimated 15,000 have requested assessment refunds.

The Agricultural Marketing and Bargaining Act works with the industry to establish marketing and processing pricing for asparagus and apple crops grown in Michigan. The producer security program oversees the arbitration process if these negotiations are not successful, and investigates unfair practice complaints.

## Section 4 – Pesticides & Agrichemicals

### Inspections/Investigations

PPPM conducts a variety of inspections and investigations to assure pesticides are used in compliance with state laws and regulations and in a manner minimizing adverse effects on human health and the environment. Pesticide inspections monitor the compliance of an individual or firm through routine contacts either in the field or at business locations. Pesticide investigations are based on an alleged violation and are conducted to determine if the allegation is true as well as monitor compliance with all pesticide regulatory requirements. In either case, detection of violations results in appropriate enforcement action and compliance assurance.



Common pesticide inspection activities include a variety of compliance monitoring such as federal and state marketplace inspections at locations where pesticides are sold, federal inspections at pesticide manufacturing facilities, and bulk pesticide storage inspections. Planned use inspections are a comprehensive inspection which may occur at a variety of operations, such as commercial businesses, schools, private farm operations, and other locations where pesticides are used and pesticide regulatory requirements apply. Pesticide investigations usually start with the receipt of a complaint alleging one or more potential violations of Michigan pesticide laws or regulations. Within 24 hours, PPPM field staff first contact the complainant and then the applicator, investigate allegations, and determine compliance with all regulatory requirements. Inspectors also collect physical, photographic, and documentary evidence to determine if violations occurred. Like an inspection, investigations also use an objective approach to determine compliance with all applicable regulatory requirements. PPPM responded to 132 pesticide complaints in 2012.

### Certification

In Michigan, applicators who apply restricted use pesticides (RUPs) must become certified to use or supervise the use of RUPs. This requirement applies to private applicators producing agricultural commodities or commercial applicators (applicators that are not private). In addition, any person applying a pesticide, other than a general use, ready-to-use pesticide (as defined), as part of their job duties must be a certified or registered applicator. Registration and certification of applicators ensure that persons applying pesticides achieve a level of comprehension appropriate to apply pesticides. There are 21,773 applicators “certified” and 266 applicators “registered” to apply pesticides in Michigan.



## **Agricultural Pesticide Dealer Licensing**

In February 2008, legislation was passed creating a new agricultural pesticide dealer (APD) license program. The new license program regulates the sale of agricultural pesticides into Michigan, regardless of the point of origin. Any APD that is not licensed as a RUP dealer must obtain the new APD license. If the APD is located outside Michigan, they must also retain a resident agent in Michigan. Out-of-state RUP or APD locations must now report the sale of all agricultural pesticides to the registrant/producer so that all applicable groundwater sales-based fees are paid. In 2012, PPPM issued 304 APD licenses.

## **Registration**

Pesticides sold, offered for sale, or used in Michigan must be registered with PPPM. This program gives PPPM the ability to regulate which products are permitted for use in Michigan and allows the division to place additional use restrictions on pesticides, when warranted, to protect human health or the environment. Generally speaking, pesticides registered in Michigan are first registered by the Environmental Protection Agency (EPA) where they undergo a number of environmental and toxicological assessments. Pesticides are registered annually. In addition to registration fees, registrants also pay an annual groundwater protection fee which helps support environmental stewardship projects. PPPM registered 15,287 pesticide products during the 2012 registration year which runs from July 1, 2012 through June 30, 2013.

In 2012, PPPM conducted 63 state marketplace inspections at various retail establishments throughout the state. These marketplace inspections identified 330 unregistered pesticides being offered for sale in Michigan's marketplace. In addition, PPPM performed 40 enhanced state marketplace inspections which included an in-depth label review and formulary analysis on 43 different supplementally distributed pesticides. These enhanced marketplace inspections identified label violations on seven different products and formulation violations on 15 different products. These violations were referred to EPA Region 5 for possible enforcement action.

## **Pesticide Enforcement Activities**

When violations of Public Act 451, Part 83, Pesticide Control, or regulations thereunder, are detected, PPPM has a variety of enforcement activities that can be used to gain compliance and issue penalties. Options include issuing warning letters requiring a written response as to how an individual or firm will comply with requirements, conducting hearings where PPPM and the defendant review findings and develop a compliance agreement, issuing administrative penalties (fines), working within the judicial system to seek warrants and prosecute violators, and conducting formal hearings to revoke business licenses or certification/registration credentials.



**Agrichemical Safety and Security**

In response to recent world events, PPPM strives to ensure fertilizers and pesticides are stored properly and securely to prevent terrorism and other misuse. Each year, PPPM staff inspects agrichemical containers to ensure they are properly identified, locked, and secure. PPPM also continued its outreach efforts to advise agricultural dealers and farmers on how they can help deter illicit use of agrichemicals while protecting their safe, intended use.

**Bulk Storage Program**

The program ensures bulk storage facilities are constructed, installed, and maintained in a safe manner with the least possible impact on people, property, and the environment. MDARD conducted 43 bulk storage inspections in FY12 and issued three warning letters for failure to register and having incomplete operational containment pads.



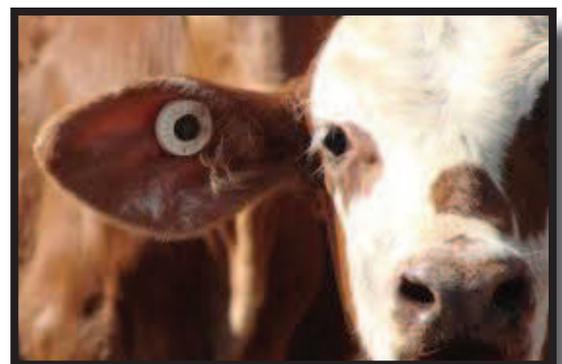
More than 60 million gallons of Michigan agrichemicals are safeguarded through the bulk storage program. With 15 construction products in place for 2012-2013, this amount is expected to increase by 35 percent by the end of 2013. In 2012, PPPM registered 222 fertilizer and pesticide bulk storage facilities and performed numerous consultations with firms building new bulk storage containment facilities and renovating existing containment to ensure compliance with storage regulations. PPPM also continues to conduct on-farm consultations and outreach activities to inform staff, industry, and producers about on farm fertilizer storage and poly tank integrity.

**Section 5 – Food Safety, Consumer Protection & Environmental Protection Statistics**

**Food Safety & Consumer Protection**

**Inspections**

Total no. of inspections .....	1,108
Agricultural products .....	550
BSE rule compliance .....	84
Bulk storage.....	43
Grain elevator sanitation.....	346
Federal contract medicated feed .....	5
State medicated feed.....	80
Complaint investigations.....	12
Products sampled.....	704
Feed - nutrient .....	219
Feed - medicated.....	182
Feed - BSE .....	102
Feed - pathogens/metals.....	113
Feed - mycotoxins .....	88



**Licenses/Registrations**

Animal remedies	
Product registrations.....	1,756
No. of registrants .....	168
Commercial feed manufacturer/distributor .....	
Michigan firms .....	360
Out-of-state firms.....	920
Fertilizer manufacturer/distributor.....	
Michigan firms .....	175
Out-of-state firms.....	410
Specialty fertilizer & soil conditioner	
Product registrations.....	4,839
Liming materials	
Product registrations.....	97
Agrichemical bulk storage facilities.....	
Fertilizer product distribution .....	1.37
(July 11-June 12) Tonnage	million tons
Commercial feed product distribution .....	
(July 11-June 12) Tonnage	million tons



**Agricultural Products Enforcement  
(feed, seed, fertilizer, remedies, lime,  
bulk storage, elevator sanitation)**

Violation notices .....	175
Failure to license/register .....	49
Stop sale.....	126
Value of violative products seized .....	\$185,420
Warning letters .....	28
Notices of intent/compliance agreements.....	3



**Environmental Protection Statistics**

**Licenses/Certifications/Registrations**

Commercial pesticide applicator	
Business licenses .....	2,255
Restricted use pesticide dealer licenses .....	263
Agricultural pesticide dealer licenses.....	304
Total certified/registered applicators .....	
Commercial pesticide applicator	
Certifications.....	14,396
Private pesticide applicator	
Certifications.....	7,377
Commercial registered applicators .....	266
Total certification/registration exams	
Administered.....	14,375
Pesticides registered in Michigan.....	15,798



**Pesticide Inspections/Investigations**

Pesticide misuse investigations  
    (agriculture) .....29

Pesticide misuse investigations  
    (non-agriculture) .....56

Planned use investigations  
    (agriculture) .....17

Planned use investigations  
    (non-agriculture) .....23

Other inspections.....344

Restricted use pesticide sales audits .....26

Federal marketplace inspections.....14

Federal pesticide producer inspections.....24

**Pesticide enforcement**

Advisory letters .....7

Warning letters .....66

Hearings .....3

Administrative penalties.....40

Prosecutions.....0

**Freedom of information act (FOIA) requests**

Pesticide program requests.....102

Plant industry program requests.....4

Emerald ash borer program requests.....0





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